

## AMENDMENTS TO THE CLAIMS

The following listing of claims replaces all prior versions, and listings, of claims in the application.

1. (Previously presented) A method of growing a nitride-based film, the method comprising:

applying a first precursor flux for a first element using a first series of pulses, wherein a pulse in the first series of pulses lasts for an approximate first duration and wherein the first element comprises nitrogen; and

applying a second precursor flux for a second element using a second pulse, wherein the second pulse has a second duration that is not equal to the first duration, and wherein at least a portion of a pulse in the first series of pulses is applied at the same time that at least a portion of the second pulse is applied.

2. (Original) The method of claim 1, further comprising applying a third precursor flux for a third element using a third pulse, wherein the third pulse has a third duration, and wherein the third duration is not equal to the first duration.

3. (Original) The method of claim 2, further comprising applying a fourth precursor flux for a fourth element using a fourth pulse, wherein the fourth pulse has the first duration.

4. (Original) The method of claim 3, wherein the nitrogen precursor flux comprises  $\text{NH}_3$ , the second precursor flux comprises TMG, the third precursor flux comprises TMI, and the fourth precursor flux comprises TMA.

5. (Canceled)

6. (Previously presented) The method of claim 1, wherein at least one of a pulse in the first series of pulses and the second pulse has a non-rectangular waveform.

7. (Original) The method of claim 1, further comprising illuminating the nitride-based film with ultraviolet radiation.

8. (Original) The method of claim 1, wherein the nitride-based film is grown on a substrate comprising at least one of: lithium aluminate and silicon.

9. (Previously presented) The method of claim 1, wherein a pulse in the first series of pulses is separated from an adjacent pulse by a gap having the first duration.

Claims 10-20 (Canceled)

21. (Previously presented) The method of claim 1, wherein the applying the first and second precursor fluxes provide sequential flows that include:

- a first flow including the first precursor flux but not the second precursor flux;
- a second flow including both the first and second precursor fluxes; and
- a third flow including the second precursor flux but not the first precursor flux.